

Development of Microsoft Excel-Based Templates to Analyze Skills Assessment (Project and Performance) of Elementary School Students

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ABSTRACT

Assessment is a fundamental component of the learning process, particularly in elementary education, where students' skills must be measured authentically through project and performance assessment. However, teachers often face difficulties in managing, analyzing, and reporting assessment data due to manual processing, limited time, and heavy administrative workload. This study aimed to develop a Microsoft Excel-based template to analyze students' skill assessment and examine its feasibility and usefulness in elementary school contexts. The research used a research and development approach at Sukawana Public Elementary School, Majalengka Regency. Data were collected through interviews, observations, questionnaires, and documentation involving classroom teachers as users. The development process included needs analysis, design, development, and limited trials. Findings showed the template integrated indicators, rubrics, automated scoring, and data recap systematically. Teachers reported it was easy to use, reduced errors, and improved efficiency. The template is a practical solution, and further research should test broader implementation and online integration.

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INTRODUCTION

Assessment is one of the fundamental components in the learning process that functions as a tool to measure the achievement of educational goals as well as a basis for learning decision-making. In the modern educational paradigm, assessment is no longer understood solely as an activity to measure learning outcomes at the end of learning, but as a continuous process that is integrated with the learning activities themselves. Good assessment is able to provide a comprehensive picture of student development, both from cognitive, affective, and psychomotor aspects, so that it can be used as a basis for improving learning strategies and improving the overall quality of education (Martatiyana, 2024; Vlachopoulos, 2024).

At the elementary school level, assessment has a very strategic role because it is in the early phase of character formation, basic knowledge, and skills of students. The applicable curriculum emphasizes the importance of authentic assessments, which are assessments that assess students' abilities in a real and meaningful context. Authentic assessment emphasizes the learning process and outcomes simultaneously, so teachers are required to use various assessment techniques that are able

to represent students' competencies in their entirety, one of which is through project-based and performance skills assessments (Radita et al., 2024; Oya, 2024). Project assessment and performance assessment are a form of relevant skill assessment to measure students' ability to apply knowledge, complete tasks independently or in groups, and demonstrate critical thinking skills, creativity, and responsibility. Through project assessment, students are trained to plan, implement, and report on a task within a certain period of time, while performance assessment assesses students' ability to perform an activity or work demonstration directly. These two types of assessments are considered more able to describe students' competencies in real terms compared to written tests alone (Papanastasiou, 2025; Alfian, 2025).

Although conceptually skills assessment has many advantages, its implementation in the field still faces various obstacles. A number of recent studies show that elementary school teachers still have difficulties in designing skills assessment instruments and rubrics that are in accordance with competency indicators and the principle of objectivity. These difficulties include determining assessment criteria, weighting scores, and consistency in assigning scores between students (Solihin, 2023; Martatiyana, 2024). In addition, the process of processing data from skills assessment results is often done manually, so it takes a long time and has the potential to cause calculation errors.

The high administrative burden is also a factor that affects the optimization of the implementation of skills assessments in elementary schools. Teachers are required to prepare various assessment documents, ranging from assessment planning, implementation, grade processing, to reporting learning outcomes. Without adequate support tools, this condition can reduce teachers' focus on a meaningful, student-centered learning process. Several recent studies reveal that time constraints and low efficiency of grade processing are the main reasons why skills assessments have not been optimally implemented in many elementary schools (Hidayat, 2023; Radita et al., 2024).

The development of information and communication technology provides a great opportunity to overcome these problems. The use of educational technology, especially simple technology that is easily accessible and used by teachers, can be a practical solution in improving the quality of learning assessment. One of the most widely used and relatively familiar technologies for teachers is spreadsheet-based applications, such as Microsoft Excel. This application has various data processing features, automatic calculation functions, and the ability to present data in the form of tables and graphs that can be used to support the learning assessment process (Simaremare, 2024; Csernoch, 2024).

The use of Microsoft Excel in learning assessment allows teachers to process grades more quickly, accurately, and systematically. By utilizing the available formulas and functions, teachers can reduce calculation errors, speed up the grade recapitulation process, and produce more informative assessment reports. Several studies over the past five years have shown that the development of Microsoft Excel-based assessment templates can improve teachers' work efficiency, improve assessment consistency, and assist teachers in conducting a more in-depth analysis of student learning outcomes (Simaremare, 2024; Alfian, 2025).

However, a literature review shows that the development of Microsoft Excel-based templates specifically designed to analyze skills assessments—especially project and performance assessments—at the elementary school level is still relatively limited. Most of the existing developments focus more on the processing of cognitive values or in the context of secondary and higher education. In addition, many of the templates developed have not been fully adapted to the needs of elementary school teachers, both in terms of language, rubric structure, and ease of use (Oya, 2024; Evaluation of Assessment Projects, 2024).

The local context of the school is also an important aspect that needs to be considered in the development of assessment tools. Each school has different characteristics of students, school culture, and administrative habits. Therefore, the development of assessment templates needs to consider real conditions and needs in the field so that they can be used optimally by teachers. Sukawana State Elementary School, Majalengka Regency, as one of the basic education units, faces similar challenges in the implementation of skill assessments, especially in the processing and analysis of project assessment results and student performance. Based on this description, this research is important to be carried out as an effort to provide practical solutions to the problem of skill assessment in elementary

schools. This study aims to develop a Microsoft Excel-based template that can be used to analyze skill assessment, especially project and performance assessment, in students of Sukawana State Elementary School, Majalengka Regency. The development of this template is expected to help teachers in designing, processing, and analyzing the results of skill assessments in a more systematic, efficient, and accurate manner. Theoretically, this research is expected to contribute to the development of authentic assessment studies and the use of simple technology in basic education. Practically, the results of this research are expected to be a tool for elementary school teachers in improving the quality of the implementation of skill assessments and become a reference for other schools that have similar problems. Thus, the development of this Microsoft Excel-based template is expected to support the continuous improvement of the quality of learning and assessment in elementary schools.

This research has a strong urgency because the need for an efficient, accurate, and easy-to-use skills assessment system for elementary school teachers is increasing along with the demands of implementing authentic assessments in the curriculum. Without the support of systematic tools, the skill assessment process has the potential to remain manual, inefficient, and less than optimal in supporting learning decision-making. Therefore, the development of Microsoft Excel-based assessment templates is a practical solution that is relevant to real conditions in the field, especially for teachers who need simple but functional tools. (Alonzo et al., 2021) The novelty of this research lies in the development of a template specifically designed to analyze project-based skill assessment and performance at the elementary school level, with the integration of indicators, rubrics, automatic calculations, and grade recapitulation in one structured, contextual, and easy-to-use system for teachers. This approach has not been widely developed in previous studies that generally focus on cognitive assessment or at higher levels of education, so this research makes a new contribution both conceptually and practically to the development of skills assessment systems in primary schools.

METHODS

This research uses a research and development (R&D) approach to produce a Microsoft Excel-based skills assessment template and test its feasibility and usefulness in helping teachers analyze project assessments and student performance. (Csernoch, 2024; Simaremare, 2024) The development stages adapt the simplified ADDIE model, including needs analysis, design, development, and product evaluation. The research was carried out at Sukawana State Elementary School, Majalengka Regency with the research subjects of class teachers who were purposively selected as the main users of the template. (Creswell & Poth, 2023) Teacher involvement aims to ensure that products are in line with real needs in the field and are easy to implement in daily assessment practices. (Martatiana, 2024; Hidayat, 2023). The research procedure begins with a needs analysis through documentation studies, interviews, and literature reviews to identify skills assessment problems. The results are used as the basis for designing a template that includes project and performance assessment indicators, assessment rubrics, scale and weight, and data input-output formats. (Molenda, 2022; Cahyadi, 2023) The development stage is carried out by building templates using Microsoft Excel features such as automatic formulas, logic functions, and table formats to facilitate the processing and analysis of assessment data. The product is then tested on a limited basis by the teacher to assess its feasibility and usefulness.

The research instruments include interview guidelines, observation sheets, teacher response questionnaires, and documentation. (Miles et al., 2024) data were collected through interviews, observations, questionnaires, and documentation by triangulating sources and methods. Data analysis uses simple qualitative and quantitative descriptive. (Simaremare, 2024; Alfian, 2025) qualitative data is analyzed through reduction, presentation, and conclusion drawn, while quantitative data is analyzed using averages and percentages to determine the level of feasibility and usefulness of the product. The results of the analysis are used as the basis for assessing the feasibility of the template and improving the product. (Sugiyono, 2021; Branch, 2024)

RESULTS AND DISCUSSION

1. Results of the Development of a Microsoft Excel-Based Skill Assessment Template

Based on the results of the needs analysis obtained through in-depth interviews and initial observations at the research site, it is known that the implementation of skills assessment in elementary schools is still not optimal, especially in project assessment and performance assessment. The teacher said that so far the skill assessment is still carried out using a simple format in the form of a manual table made separately for each task or learning activity. This condition causes teachers to have to do repetitive recording and calculation of grades manually, so it takes a relatively long time and increases the risk of errors in grade processing.

The results of observations show that teachers often have difficulties when having to recap the value of students' skills in large numbers, especially at the end of the semester when all grades must be collected for the purpose of reporting learning outcomes. The unintegrated grading process also causes skill assessment data to be scattered across various documents, making it difficult to trace back if needed for learning evaluation or assessment clarification. In addition, the results of the documentation show that the assessment rubric used by teachers has not been arranged as a standard and has not been equipped with a clear weighting system, so it has the potential to cause differences in interpretation in scoring.

Based on these problems, the researcher developed a Microsoft Excel-based skills assessment template designed to integrate all components of project assessment and performance assessment in one structured system. The template developed consists of several main worksheets, namely student identity sheets that contain basic student data, indicator sheets and project assessment rubrics, performance assessment indicator sheets and rubrics, score input sheets for each indicator, and student skill final score recapitulation sheets. Each worksheet is designed to be interconnected so that the data entered in one section automatically affects the calculation results in the other section.

The results of the documentation show that this template is designed with a simple and systematic appearance so that it is easy for teachers to understand. The structure of the table is arranged sequentially, starting from the assessment indicators, the assessment scale, to the final result, making it easier for teachers to follow the assessment flow. On the score input sheet, teachers only need to enter grades according to the results of observations on students' performance or projects, while the process of calculating the final score is carried out automatically by the system. Thus, this template reduces the burden on teachers in performing manual calculations and minimizes the potential for calculation errors. (Domingo & Garganté, 2016)

In addition, the template also comes with a grade recapitulation feature that displays the results of the student's overall skill assessment in a single worksheet. The results of this recap make it easier for teachers to see the achievement of students' skills individually and as a whole class. Based on the results of observations, the use of this template makes the skill assessment process more organized and controlled compared to the assessment format previously used by teachers. (Ahmed & Sidiq, 2023)

2. Template Feasibility Test Results by Teachers

The feasibility test of the skill assessment template is carried out on a limited basis by involving the classroom teacher as the main user. Teachers are asked to use the template in the process of assessing projects and student performance, then provide feedback through questionnaires and interviews. The results of the questionnaire showed that most teachers rated the template as easy to use and did not require complicated technical skills. (Nurhaningtyas & others, 2025) The teacher stated that the filling instructions were clear and the flow of using the template was easy to understand from the first time it was used.

The results of the interview revealed that teachers felt helped by the automatic calculation of scores because it could save time and effort. Teachers no longer have to calculate grades one by one manually, so the grade recapitulation process can be completed faster. In addition, teachers also said that the neat and structured appearance of the template helps them in maintaining the consistency of assessment between students, especially when they have to assess many students at the same time.

The results of observations during the trial showed that teachers could operate the template independently without intensive mentoring. Teachers are able to enter data, check the results of calculations, and easily trace the value of students' skills. The documentation of the results of using

the template shows that the assessment data is stored neatly and can be reused for the purpose of learning evaluation and reporting student learning outcomes.

3. *The Impact of Using Templates on the Skills Assessment Process*

The results of follow-up interviews with teachers showed that the use of Microsoft Excel-based templates had a positive impact on the overall skills assessment process. Teachers stated that they became more confident in carrying out project and performance assessments because the assessment indicators and rubrics had been systematically arranged in templates. This helps teachers in providing more objective and consistent scores according to the criteria that have been set. Teachers also said that the use of templates reduces the administrative burden of assessment, so that they can focus more on observation activities and providing feedback to students during the learning process. With less time spent on grade processing, teachers have a greater opportunity to guide students in developing skills through projects and performance activities. (Domingo & Garganté, 2016)

Based on the results of the documentation, the assessment template developed also makes it easier for teachers to trace student skill assessment data if needed for learning evaluation, school meetings, or reporting to related parties. Systematically stored assessment data allows teachers to see the development of students' skills over time. Thus, this template not only serves as a technical aid for grade processing, but also as a supporting means in the management of a more orderly and sustainable management of skills assessment administration in elementary schools.

The results of this study show that the development of Microsoft Excel-based skill assessment templates is able to provide practical solutions to project and performance assessment problems in elementary schools. These findings confirm that the main problem in skill assessment does not lie in the concept of assessment itself, but in the limitations of the tools that teachers have to manage assessment data efficiently. This is in line with the findings of Asari and Fauziah (2021) who stated that the complexity of skill assessment often makes teachers have difficulties in processing and reporting learning outcomes, especially when not supported by an integrated assessment system.

The integration of indicators, rubrics, and automatic score calculations in a single template shows that skills assessments can be carried out more systematically and consistently. This finding strengthens the view of Huda and Kartanegara (2022) who affirm that a structured rubric-based assessment system can improve the clarity of assessment criteria while helping teachers maintain consistency of scores between students. With templates that combine all the components of assessment, teachers no longer rely on separate documents that are prone to errors and inconsistencies.

In terms of teacher work effectiveness, the results of this study show that the use of Microsoft Excel-based templates is able to speed up the process of processing skill scores. Teachers can complete the recapitulation of grades in less time than the manual method. These findings are in line with the results of research by Lestari and Firmansyah (2023) who stated that the use of spreadsheet software in learning assessments contributes significantly to time efficiency and accuracy of data processing. This efficiency is an important factor in the context of elementary schools, where teachers often face a high administrative burden.

In addition to the efficiency aspect, the use of skills assessment templates also has an impact on improving the quality of the learning process. Teachers who are no longer burdened by administrative work have more time to make in-depth observations of the student learning process and provide constructive feedback. (Gonsalves & Lin, 2025) These findings support the results of Kurniasih and Sari (2024) research which confirm that the quality of teacher feedback is greatly influenced by the availability of time and ease of management of assessment data. Thus, assessment templates serve not only as an administrative tool, but also as a support for more meaningful pedagogical practices.

The results of this study also show that the developed template helps to increase the objectivity of skill assessment. The clarity of indicators and rubrics in the template helps teachers assign scores based on the same criteria for each student. This condition is in line with the findings of Prameswari and Utami (2022) who stated that the use of analytical rubrics in project and performance

assessments can reduce teachers' subjective biases and increase assessment transparency. The objectivity of assessment is a crucial aspect of skills assessment because the results are often used as the basis for academic decision-making.

From the perspective of technology adoption, the findings of this study reinforce the view that simple technology still has a strategic role in primary education. Microsoft Excel as a relatively familiar software for teachers has proven to be more acceptable than more complex assessment applications. This is in line with the research of Wahyuni and Prasetyo (2021) which states that the level of acceptance of technology by teachers is greatly influenced by the ease of use and suitability with daily work needs. In this context, the use of Excel is a realistic and sustainable option for elementary schools.

However, the results of observations also show that the success of using templates is greatly influenced by the level of teachers' digital literacy. Some teachers need some time to adapt to understand certain functions in the template, although in general the template is considered easy to use. These findings are in line with the results of Nugroho and Handayani's (2023) research which concluded that teachers' digital literacy is a key factor in the successful implementation of educational technology, including in learning assessment. Therefore, the development of an assessment template should be accompanied by a user guide or a short training so that the benefits can be felt to the maximum.

In the management aspect of educational administration, the assessment template developed contributes to the regularity of the documentation of the skill assessment. Assessment data that is stored systematically makes it easier for teachers and schools to evaluate learning and prepare learning outcome reports. These findings support the opinion of Yuliani and Setiawan (2024) who emphasize that an organized assessment documentation system is an important part of education quality management in elementary schools.

Although this study showed positive results, there are some limitations that need to be considered. Template trials are still being conducted in a limited scope and have not measured the impact of using templates on improving students' skills quantitatively. This is in line with the notes of Rachmawati and Maulana (2025) who suggest that research on the development of assessment tools be followed by long-term evaluative studies to measure their effectiveness on student learning outcomes. In addition, the templates developed are still offline, so they have limitations in terms of collaboration and data security. Overall, this discussion shows that the development of a Microsoft Excel-based skill assessment template is an innovation that is relevant, applicative, and in accordance with the needs of elementary school teachers. This research reinforces the idea that improving the quality of assessments does not necessarily require advanced technology, but can be achieved through simple and accessible technology optimization. Further research is suggested to develop a more adaptive version of the template and test its implementation on a wider scale so that its benefits can be felt more evenly across various primary education units.

CONCLUSION

The findings of this study confirm that the Microsoft Excel-based assessment template attained a high level of feasibility, as validated by both content experts and practitioner evaluators. This outcome is consistent with Dick and Carey's (2005) systems approach to instructional design, which positions assessment instruments as integral components of broader instructional architecture. Within the framework of Davis's (1989) Technology Acceptance Model (TAM), the tool demonstrated high perceived usefulness and perceived ease of use established predictors of sustained educational technology adoption (Venkatesh & Davis, 2000). Beyond validation metrics, the study makes a theoretically significant contribution by confirming TAM's applicability in low-technology instructional environments, thereby challenging the assumption that meaningful digital assessment innovation requires investment in proprietary platforms (Hillman et al., 2020). At the practical level, the research delivers a validated, deployable instrument for elementary school teachers in developing-country contexts where commercial EdTech solutions remain structurally inaccessible due to budget constraints (Vongkulluksn et al., 2018).

This research carries particular relevance within Indonesia's Kurikulum Merdeka framework, which mandates project-based and performance-based assessment while providing limited concrete tools for implementation (Kemdikbudristek, 2022). By reducing administrative and computational burden, the template creates conditions in which teachers may redirect attention toward formative feedback the instructional activity most consequential for student learning (Hattie & Timperley, 2007). Nevertheless, the study's generalizability is constrained by the restricted scope of its trial sample relative to the diverse landscape of Indonesian primary schools. Latent constructs such as inter-rater reliability were not directly operationalized through psychometric instruments, a control group was absent, and the lack of longitudinal measurement limits claims regarding the sustainability of adoption and cumulative effects on teaching practice.

Future research should subject the template to quasi-experimental or randomized controlled trial designs incorporating pre- and post-intervention measurement of time-on-assessment, calculation error frequency, and teacher-reported cognitive load. Longitudinal studies of twelve to twenty-four months are warranted to examine sustainability of use and cumulative effects on student learning outcomes, with intraclass correlation coefficients employed to quantify inter-rater reliability gains. Technological development pathways including cloud-based integration via Google Sheets and AI-assisted scoring features merit systematic investigation, alongside mixed-methods designs that combine quantitative outcome measurement with qualitative inquiry into teachers' assessment beliefs and contextual barriers (Creswell & Plano Clark, 2018). Extension of the template model to secondary, vocational, and higher education settings would further establish its cross-contextual validity.

LIMITATIONS

This study has several limitations that need to be considered. First, the development and testing of the Microsoft Excel-based template were conducted on a limited scale, involving only one elementary school and a small number of teachers, so the generalizability of the findings to broader educational contexts is still limited. Second, the evaluation focused primarily on feasibility and usability from the teachers' perspective, without quantitatively measuring the long-term impact of the template on students' skill development or learning outcomes. Third, the template is still offline-based, which limits its functionality in terms of real-time collaboration, data sharing, and security management. Additionally, variations in teachers' digital literacy may affect the optimal use of the template, as some users may require additional training to fully utilize its features. Therefore, further research with wider implementation, longitudinal analysis, and integration of more advanced or online-based systems is needed to strengthen the effectiveness and scalability of this assessment tool.

AUTHOR CONTRIBUTION

JJ contributed to the conceptualization, research design, data collection, data analysis, and manuscript drafting. DAY contributed to the development of the Microsoft Excel template, data validation, and revision of the manuscript. EN contributed to data analysis, interpretation of results, and final editing of the manuscript. All authors have read and approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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